Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).
Description

[0001] This invention pertains to the technological field of the design of zippers, i.e., the well-known devices that are used to create a reversible connection between two edges made of fabric, leather, or other materials.

[0002] To achieve this connection, two facing members, each of which consists of a row of appropriately shaped teeth, are connected to one another in a reversible manner using known methods by causing a slider to run along said members; said slider consists of a movable part connected to it which is stretched between the fingers in order to be able to exert on the slider the force that is required to make it slide.

[0003] In some types of sliders, between the slider proper and said movable part, which based on its function is called a "drawer", is inserted a connecting joint that has two cavities; one of said cavities is intended to mate with a raised part of said "bridge" of the slider, while the other cavity mates with a collar on the drawer.

[0004] According to the state of the art, said connecting joints are made in a single piece, for which reason said two cavities are simply closed-edge holes into which either said bridge or the collar of the drawer is inserted.

[0005] This accounts for the fact, e.g., that, for sliders that are equipped with the joint in question, it is first necessary to insert the bridge into the corresponding cavity of the joint and then to attach the bridge itself to the body of the slider by pressing, bonding, or similar techniques. This involves an operation that is time-consuming and thus costly, in addition to being somewhat complex.

[0006] In addition, once a certain kind of drawer has been attached, it is no longer possible to detach it from the joint in order to replace it, either when it breaks or when the user wished to use a drawer that has different esthetics and/or functional characteristics.

[0007] In order to avoid the drawbacks and advantages mentioned above, the inventor of this invention has conceived a new type of joint between the slider and the drawer, which joint has characteristics such that, during the phase of designing the parts of a zipper, it is possible to make it even to a fixed bridge, thus making it integral with the slider; said characteristics also make it possible to hook a drawer up to the joint itself in a reversible manner such that, when so desired, it can be removed without difficulty.

[0008] Moreover, the inventor has provided an advantageous solution, that will be described below, that allows to substantially reduce production time and costs, as it makes it possible to assemble the parts of the joint using a single pressing operation.

[0009] Said a solution is not comprised in the state of the art, since the most relevant examples thereof, i.e. patent EP-A-0 089 695 and patent EP-A-0 034 251, which disclose joints somehow similar to that of the invention as regards the shape of single components, do not even consider the possibility to use such a solution.

[0010] More particularly, the object of the invention consists of a joint for connecting the slider of a zipper and the corresponding drawer as described in the preamble of appended claim 1, and characterized by the characterizing part of claim 1 same.

[0011] In the dependent claims, other characteristics of the joint are described that make it possible for the joint to be connected to the collar of the drawer in a reversible manner.

[0012] A more detailed description of a preferred embodiment of the joint according to the invention and its advantages will now be given, also referring to the attached drawings, where:

- Fig. 1 shows a side view of a slider attached to the joint of the invention, which in the figure is in longitudinal cutaway;
- Fig. 2 shows a cross-section through the joint of Fig. 1, made corresponding to a separate spring collar, which is used as a cavity for connecting the slider to the bridge;
- Fig. 3 shows a front view of the collar spring, which is designed to bend a metal wire.

[0013] Look first at Fig. 1: in it the connection of fixed bridge 6 of a slider 1 to joint 4 is made by connecting it to a collar spring 3, which in the embodiment in question is made by bending a wire made of steel or some other material that has good compressive strength characteristics.

[0014] Lower end 3s of said collar spring 3 is open, in such a way that bridge 6 can be inserted into it. Said end 3s is then inserted into a space 11 made in joint 4. When both collar spring 3 and its open lower end 3s are of the proper shape, joint 4 is secured inside of space 11 by means of simple pressure or punching force being exerted on the joint perpendicular to said joint and to said collar spring 3: the plastic deformation of the inside walls of space 11 of joint 4, which is therefore made of metallic materials that are suitable to the task and are known to one skilled in the art, creates a reliable connection that locks spring 3 to joint 4. Obviously, it is possible to make on the inside walls of space 11 appropriate projections that are intended to increase the reliability of said locking action: this is not necessary, however, for the typical uses of zippers.

[0015] Collar spring 3, which is shown in Figs. 1, 2, and 3, is symmetrical with respect to its two median planes and has open ends that project outward, but they can be designed in other shapes that may be more suitable to particular applications.

[0016] Fig. 1 also shows the system according to the invention for ensuring the reversibility of the connection of collar 2a of a drawer 2 to joint 4: second cavity 5, which admits said hook, is composed of the bend of a hook 8 that has an opening 8a on one side; in the body of the joint itself is another attachment space 10, which
is closed at the sides and into which is inserted an end 9p of a flexible straight spring 9 (see Figs. 1 and 2), which end is appropriately shaped in order to allow firm and reliable mating with joint 4.

[0017] From said end there extends a straight, flexible arm that is shaped in such a way as to enclose said bend of hook 8 with its free end 9q.

[0018] Straight spring 9 is positioned and designed in such a way as to enclose said opening 8a when no force is exerted on spring 9 itself and, owing to its elasticity, allows the edge of collar 2a of a drawer 2 to be inserted into it in order to connect the latter to joint 4. This makes it possible to insert and remove a drawer 2 into and from the bend of hook 8 without any difficulty whatsoever.

[0019] This ensures the achievement of the advantages proposed by the inventor, i.e., those associated with producing a "universal" joint 4, in the sense that to it can be connected sliders of any type, including fixed-point sliders and which can optionally be replaced by the drawer connected to the joint itself.

[0020] By using a joint according to the invention and employing some other expedients, another design advantage can be achieved that has an impact on production time and cost: as a matter of fact, it is sufficient to put lower part 3s of collar spring 3 and associated end 9p of straight spring 9 into corresponding spaces 10, 11 of joint 4 in positions where they face one another and are traversed by a straight line K-K that is perpendicular to joint 4 itself, and it is possible simultaneously to secure collar spring 3 and straight spring 9 using a single pressing operation that is performed on joint 4 in the direction of said straight line K-K (the arrows in the figure indicate the direction in which the force is applied).

[0021] The preferred embodiment described thus far for the joint according to the invention is given simply by way of example: by modifying the shapes and characteristics of the various components and simply the means for attaching them, it is possible to produce innumerable embodiments to comply with design and functional requirements.

[0022] These embodiments will, however, fall within the framework of the protection offered by this application if they can be traced back to the descriptions given in the attached claims.

Claims

1. Joint (4) for connecting a slider (1) of a zipper and a corresponding drawer (2), whereby said joint includes a first cavity (3a) to connect it to a bridge (4) of slider (1) and a second cavity (5) for connecting it to a collar (2a) of said drawer (2), wherein said first cavity (3a) is made in a separate part (3) connected to joint (4) by means of attachments, in which joint said second cavity for connecting the joint (4) itself to a collar (2a) of a drawer (2) is made up to loop (5) of a hook (8) that has an opening (8a) on one side; to the body of joint (4) there being attached a straight flexing spring (9) that is positioned and sized in such a way as to enclose said opening (8a) when no force is applied to it and to allow, owing to its give, the edge of collar (2a) of said drawer (2) to be introduced in order to hook up to joint (4) itself; said straight flexing spring (9) having an end (9p) that is opposite the free end (9q) and being of such a shape and size that it can be inserted into an attachment space (10) that is made in joint (4) itself and to be locked there by means of pressure applied to the latter, characterized in that the fixed end (9p) of the straight spring (9) and the lower open part (3s) of said separate part (3), which is a collar spring, are positioned in two spaces (10, 11) that are provided in joint (4) in positions next to each other and traversed by a straight line (K-K) that is perpendicular to joint (4) itself, in such a way that it is possible to simultaneously secure the straight spring (9) and the collar spring (3) in a single operation of force applied to the joint (4) in the direction of said straight line (K-K).

2. Joint according to claim 1, in which said first cavity is composed of a collar spring (3) that is open at one end (3s) for inserting the bridge of a slider and is made by bending a metal wire with a shape that is suitable for admitting said open end (3s) of collar spring (3) to be connected to joint (4) by means of pressure exerted on the latter.

Patentansprüche

1. Gelenk (4) zum Verbinden eines Schiebers (1) eines Reißverschlusses und eines entsprechenden Zugorgans (2), wobei das Gelenk einen ersten Hohlraum (3a) aufweist, um es mit einem Bügel (4) des Schiebers (1) zu verbinden, und einen zweiten Hohlraum (5), um es mit einem Ring (2a) des Zugorgans (2) zu verbinden, wobei ferner der erste Hohlraum (3a) in einem getrennten Teil (3) ausgeführt ist, das mit Hilfe von Befestigungsmitteln mit dem Gelenk (4) verbunden ist, und der zweite Hohlraum zum Verbinden des Gelenks (4) selbst an einen Ring (2a) eines Zugorgans (2) als Schleife (5) eines Hakens (8) ausgeführt ist, der auf einer Seite eine Öffnung (8a) aufweist; an dem Körper des Gelenks (4) eine gerade flexible Feder (9) befestigt ist, die derart positioniert und bemessen ist, daß sie die Öffnung (a) verschließt, wenn keine Kraft auf sie angewandt wird, und aufgrund ihrer Gegebenheit es dem Rand des Ringes (2a) des Zugorgans (2) erlaubt, eingeführt zu werden, um am Gelenk (4) selbst eingehängt zu werden; und wobei die gerade flexible Feder (9) ein Ende (9p) hat, das zum freien Ende (9q) entgegengesetzt ist und eine solche Form und Größe aufweist, daß es in einen Befesti-
gungsraum (10) eingeführt werden kann, der sich im Gelenk (4) selbst befindet, und dort mit Hilfe eines auf letzteres ausgeübten Drucks verriegelt werden kann, dadurch gekennzeichnet, daß das fixierte Ende (9p) der geraden Feder (9) und das untere offene Teil (3s) des separaten Teils (3), das eine Ringfeder ist, in zwei Räumen (10, 11) positioniert sind, die in dem Gelenk (4) in Positionen nahe beieinander vorgesehen sind und von einer geraden Linie (K-K) geschnitten werden, die senkrecht zum Gelenk (4) selbst verläuft in einer solchen Weise, daß es möglich ist, gleichzeitig die gerade Feder (9) und die Ringfeder (3) in einem einzigen, auf das Gelenk (4) in Richtung der geraden Linie (K-K) ausgeübten Kraftvorgang zu befestigen.

2. Gelenk nach Anspruch 1, wobei der erste Hohlräum von einer Ringfeder (3) gebildet wird, die an einem Ende (3s) zum Einführen des Bügels eines Schiebers offen ist und durch Umbiegen eines Metalldrahtes in einer Form hergestellt ist, die die Befestigung des offenen Endes (3s) der Ringfeder (3) an dem Gelenk (4) mittels eines auf letzteres ausgeübten Drucks erlaubt.

Revendications

1. Joint (4) pour relier une glissière (1) d’une fermeture-éclair et une tirette correspondante (2), le dit joint comprenant une première cavité (3a) pour le relier à un pont (4) d’une glissière (1) et une seconde cavité (5) pour le relier à un anneau (2a) de ladite tirette (2), dans lequel la première cavité (3a) est ménagée dans une partie séparée (3) reliée au joint (4) par des moyens de fixation, dans lequel la dite seconde cavité pour relier le joint (4) lui-même à un anneau (2a) d’une tirette (2) est constituée par la boucle (5) d’un crochet (8) qui présente d’un côté une ouverture (8a) ; au corps du joint (4) étant fixé un ressort rectiligne flexible (9) qui est positionné et dimensionné de façon à fermer la dite ouverture (8a) quand aucune force ne lui est appliquée et à permettre, en raison de son élasticité, d’introduire le bord (2a) de la tirette (2) afin d’accrocher celle-ci au joint (4) lui-même ; le dit ressort rectiligne flexible (9) présentant une extrémité (9p) opposée à son extrémité libre (9q) et ayant une forme et une dimension telles qu’elle peut être introduite dans un espace de fixation (10) ménagé dans le joint (4) lui-même et y être verrouillée sous l’effet d’une pression appliquée à ce dernier, caractérisé en ce que l’extrémité fixe (9p) du ressort rectiligne (9) et la partie inférieure ouverte (3s) de la dite partie séparée (3), qui est un ressort annulaire, sont placées dans deux espaces (10, 11) qui sont ménagés dans le joint (4) dans des positions proches l’un de l’autre et traversées par une ligne droite (K-K) qui est perpendiculaire au joint (4) lui-même, de telle façon qu’il soit possible de fixer simultanément le ressort rectiligne (9) et le ressort annulaire (3) en une opération unique d’application d’une force au joint (4) dans la direction de la ligne droite (K-K).

2. Joint selon la revendication 1, dans lequel la dite première cavité est constituée par un ressort annulaire (3) qui est ouvert à une extrémité (3s) pour introduire le pont d’une glissière et est obtenu par courbure d’un fil métallique selon une forme appropriée pour l’admission de la dite extrémité ouverte (3s) du ressort annulaire (3) devant être reliée au joint (4) sous l’effet d’une pression exercée sur ce dernier.